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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,354	09/27/2004	Nick Zakhlcniuk	BTW-087US	5047

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EXAMINER	
JACKSON JR, JEROME	

ART UNIT	PAPER NUMBER
2815	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,354	ZAKHLENIUK ET AL.	
	Examiner	Art Unit	
	Jerome Jackson Jr.	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/3/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Aizawa et al 10/91 IEEE Photonics Tech. Lett.

Aizawa teaches a quantum dot modulator used in the manner claimed. Nevertheless, claim 1 does not structurally distinguish over Aizawa regardless of the operation or "function" of the device. Particularly, in regard to the functional language, See In re Swinehart 169 USPQ 226, Ex parte Minks 169 USPQ 120 and In re Pearson 181 USPQ 641 where it was decided that functional language, statements of intended use, or mere labels do not structurally distinguish claims over anticipating prior art.

The mathematical formula describes the function of both applicant's and Aizawa's quantum dot modulator devices. Most of the claims recite functional language and do not structurally or functionally distinguish over Aizawa.

Claim 5 reciting "1400 nm" is anticipated or obvious over Aizawa as adjustment of the quantum box size and material components to suit particular needs such as common communication wavelengths is considered routine in the art. The InGaAs/InP quantum dots of Aizawa have a bandgap of the order claimed.

The recitations of claims 2,3,6,7 are basically functional language again and do not structurally distinguish the claims over Aizawa.

Claims 4 and 8 do not structurally distinguish over Aizawa as figures 2 and 3 show a modulation system as claimed and the functional language does not distinguish over Aizawa. Claims 8-12 are also obvious as practicing the quantum dot modulator of Aizawa in a "push-pull" configuration would have been obvious to one of ordinary skill as these types of modulators are common in the art.

Claims 13-20 are anticipated or obvious as Aizawa uses InGaAsP/InP based materials and the process by which the device is made does not make the final device patentable. A product by process claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck 177 USPQ 523; In re Fessman 180 USPQ 324; In re Avery 186 USPQ 161; In re Wertheim 191 USPQ 90; and In re Marosi et al 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process claim, and not the patentability of the process, and

that an old product produced by a new method is not patentable as a product, whether claimed in "product by process claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aizawa in view of Betts '158.

In regard to the recitation of a "push-pull modulator" Betts shows this configuration. It would have been obvious to have practiced the quantum dot modulator of Aizawa in "push-pull" configuration to double the figure of merit, lower voltages, etc.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aizawa with Betts and further in view of Kohmoto et al 2002.

It would have been obvious to have practiced InAs self-assembled quantum dots from the suggestions of Kohmoto for ease of manufacture, reproducibility, etc. Claims reciting particular dot structure are obvious over the applied art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson Jr. whose telephone number is 571-272-1730. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jj

JEROME JACKSON
PRIMARY EXAMINER